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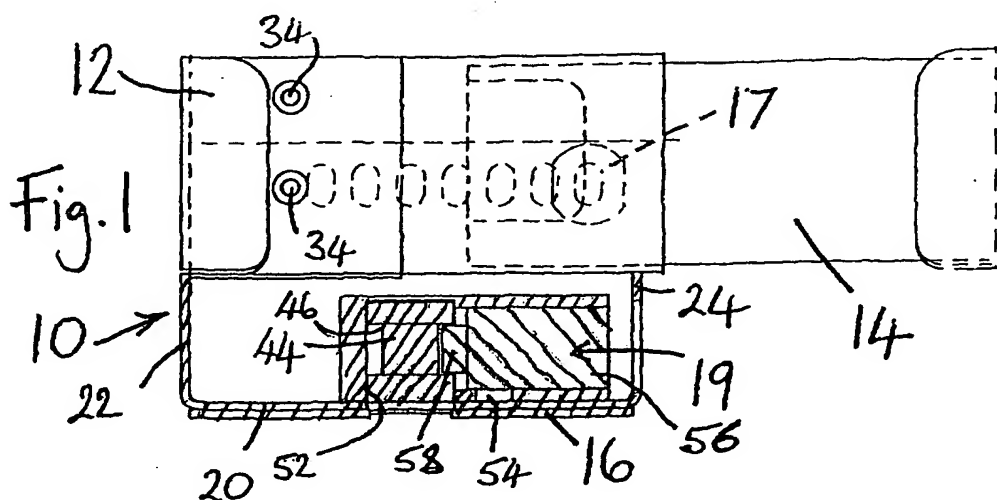
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(54) Security apparatus

(57) In order to secure a valuable, otherwise portable device, such as a lap top computer, electronic organiser or mobile telephone, it is placed on a frame (10) with one edge fitting into a channel element (12) at one side of the frame. A slidably adjustable retainer element (14) is mounted onto the frame (10) and has another channel at the other side of the frame (10) which fits onto the opposing edge of the device. Once the retainer ele-

ment (14) is locked in position (by lock (17), the device cannot be removed from the frame (10), which may itself be secured to a surface, e.g. by a bolt of a further lock (19) engaging into a groove (46) of a surface-mounted pin (44). In another embodiment (Figs. 15 and 16) a single lock (117) serves to secure the retainer element in its selected position as well as to secure the frame to a fixed structure.



Description

[0001] The present invention concerns security apparatus which is particularly, but not exclusively, for use in securing expensive portable items of electronic equipment, such as lap top computers, electronic organisers, mobile telephones and similar devices.

[0002] The applicants earlier specification GB 2 336 392 discloses security apparatus comprising a frame having a transverse portion adapted to extend across an outer surface of a hinged lid of a lap-top computer or similar hinged lid device and also having retaining means in the form of at least one channel arranged to receive an edge of the lid of the computer in an open position of the lid, means also being provided on the frame whereby it is securable to a fixed structure.

[0003] Thus, the frame may have a channel at one end of the transverse portion to fit around one edge of the lap top lid, and a lockable moveable arm to engage around an opposing edge, and means such as a base and/or a cable and cable securing bracket, for securing the frame to a fixed structure.

[0004] Alternatively the frame may have a respective channel at each end of the transverse portion, so that a lap top lid can be inserted between the channels, and further means for securing the transverse portion to a fixed structure.

[0005] In both these cases, the transverse portion must, of course, be closely adapted in size to the width of the lap top computer lid. Therefore a range of different sizes has to be provided to cater for different makes of laptop, or for other devices to which the concept is equally applicable, such as portable electronic organisers or game devices or mobile telephones.

[0006] An object of the present invention is to provide a modified security apparatus which can be adapted for use with different sizes and types of equipment to be secured.

[0007] The present invention proposes security apparatus comprising a frame having a fixed channel adapted for retaining one edge of a device to be secured, a retaining element for engaging an opposing edge of the device, and means for securing the frame to a fixed structure, characterised in that the retaining element provides a further channel for reception of the opposing edge of the device and is mounted on the frame so as to be slidably adjustable relative thereto and securable thereto in a selected position.

[0008] Preferably a portion of the frame is hollow and the retaining element is slidably locatable therein. However, this arrangement could be reversed with the retaining element being hollow and fitting around a portion of the frame in the manner of a slidable sleeve.

[0009] The invention will be described further, by way of example, by reference to the accompanying drawings, in which:

Figure 1 is a partially sectional front view of a first

practical embodiment of the security apparatus of the invention in a fully expanded condition;

Figure 2 is a corresponding view of the same apparatus in a fully contracted condition;

Figure 3 is a cross section of the same apparatus, along line III-III in Fig. 2 in the direction indicated by arrows, together with a fixing plate;

Figure 4 is an end view of the slidable retaining element of the apparatus of Figs. 1 to 3 in the opposite direction to the section in Fig. 3;

Figure 5 is plan view of the retaining element shown in Fig. 4;

Figure 6 is a partially sectional front view of a second practical embodiment of the security apparatus of the invention in a fully expanded condition;

Figure 7 is a corresponding view of the same apparatus in a fully contracted condition;

Figure 8 is a cross section of the same apparatus, along line VIII-VIII in Fig. 6, together with a fixing plate;

Figure 9 is a plan view of the slidable retaining element of the apparatus of Figs. 6 to 8;

Figure 10 is a plan view of the supporting plate of the apparatus of Figs. 1 to 3 or Figs. 6 to 8;

Figure 11 is a side view of the plate of Fig. 10;

Figure 12 is a plan view of the fixing plate, shown in Figs. 3 and 8, to which the plate of Figs. 10 and 11 is securable;

Figure 13 is a side view of the plate of Fig. 12;

Figure 14 is a plan view of the apparatus of Figs. 1 and 2 without the slidable retaining element;

Figure 15 is a partially sectioned front view of a third practical embodiment of the security apparatus of the invention; and

Figure 16 is a cross-section of the same apparatus, along line X-X in Fig. 15, together with a fixing plate.

[0010] In the drawings, parts which are concealed behind others are shown in broken lines.

[0011] Referring to Figs. 1 to 5, 10, 11 and 14 of the drawings, a first practical embodiment of the security device of the invention comprises a frame (10), a fixed channel element (12), a slidably adjustable retaining el-

ement (14) and a support plate (16), all of which are fabricated of steel sheet. The apparatus also comprises first and second locking devices (17, 19).

[0012] The frame (10) comprises a large flat base (20) having a respective upstanding flange (22), (24) at each side. Between the flanges (22, 24) there extends a slotted hollow section (26), the profile of which is quadrangular and is apparent in Fig. 3. An elongate slot (28) extends transversely along the rear of the hollow portion (26) and inside the hollow section (26), there is an upstanding flange (30) provided with a row of apertures (32), as shown in Figs. 1 and 2.

[0013] The fixed channel element (12) is secured to the front of the hollow section (26), at one end thereof, by a pair of bolts (34) which are accessible only to the front of the apparatus. The flange (22) is disposed to the rear of the section (26) at the same end. The channel element (12) can be detached and removed/replaced only when there is no device mounted in the frame for securement.

[0014] The retaining element (14) is shown separately in Figs. 4 and 5. It comprises a hollow portion (36) and an end wall (38), which is bent near the front to define a channel (39) and extends to the rear to form a flange (40). The hollow portion (36) is in the form of a slotted section of quadrangular profile, which is slightly smaller than the profile of the hollow portion (26) of the frame (10) so as to be a sliding fit therein, as is apparent in Fig. 3.

[0015] The slot (42) in the retaining element hollow section (36) is in its bottom wall, i.e. it does not coincide with the slot (28) in the hollow portion (26) of the frame (10). The first locking device (17) in the form of a key actuated projecting style of lock is mounted in the rear wall of the hollow section (36).

[0016] The support plate (16), shown in Figs. 10 and 11, is circular and has a substantial pin (44) welded to the centre of one surface, which is the upper surface in use of the apparatus. The pin (44) is formed with a groove (46). Four equally spaced holes (48), for receiving heads of fixing bolts, are provided in the plate (16), as shown in the drawings. Stud (45) which serves as a stop member is provided adjacent the periphery of the plate (16) on the same surface as the pin (44).

[0017] The second locking device (19) which is shown in Figs. 1 to 3, is mounted on top of the base (20) of the frame at a location between the flanges (22), (24). It comprises a steel block having a cylindrical blind bore (50). A large and a small aperture (52), (54) are formed in one wall of the block, whereby the bore (50) communicates to the exterior. A lock barrel (56), having a tongue (58) projecting from its inner end and also having a key actuated lateral catch, can be fitted into the bore (50). An aperture (72) of a size corresponding to the aperture (52) in the block (19) is provided in the base (20) of the frame (10).

[0018] Also used with the aforesaid apparatus is a circular fixing plate (60), also of sheet steel, which is shown

in Figs. 3, 12 and 13. This is formed with four apertures (62) and corresponding threaded bushes (64) encircling these apertures on one surface, which in use is its underside.

[0019] In use, the fixing plate (60) is firstly secured to the underside of a fixed surface, such as a desk top or shelf by any conventional means (not shown). Such fixing should take place below where the apparatus is to overlie the plate (60). The support plate (16) is then secured through holes in the fixed surface to the fixing plate (60) by bolts (not shown) through the apertures (48), (62) threadedly engaging the bushes (64).

[0020] The frame (10) is then secured to the plate (16) by way of the locking device (19), by the pin (44) locating into the aperture (52) in the block of the locking device (19). The barrel (56) is then inserted into the bore (50). Its tongue (58) projects into the groove (46) in the pin (44) and it is locked in this position by key actuation at its free end causing the catch (not shown) to project laterally into the second smaller aperture (54) in the block. Because of the location of the tongue (52) in the groove (46) which encircles the pin (44), the frame (10) is able to rotate relative to the plate (16) while being secured thereto. As shown in Fig. 14, the base (20) of the frame (10) has a peripheral margin cut away, so as to expose a peripheral margin (16A) of the support plate (16) through an angular extent of about 120°. The stud (45) projects from the peripheral margin (16A) and serves as a stop member to limit the rotation of the frame (10) relative to the plate (16). However, such rotation is sufficient to allow the frame to rotate through at least 90°, as indicated by arrows A in Fig. 14, from an initial, normal orientation facing forward.

[0021] The hollow portion (36) of the retaining element (14) is slidably (telescopically) located in the hollow portion (26) of the frame (10), as shown in Figs. 1 and 2 in particular. This particular illustrated embodiment is adapted in the shape and size of the channel element (12) and of the cooperating channel (39) on the retaining element (14) to secure a hinged lid style of electronic organiser, such as that marketed under the name PSION (registered trade mark). When it is to be secured, the organiser device is placed on the forwardly extending portion of the base (20), and its lid is opened and inserted at one side into the channel of the fixed element (12). The retaining element (14) is then pushed inwards of the hollow portion (26) until its channel (39) snugly fits around the opposing edge of the organiser lid. At this point the locking device (17) is actuated so that its lock bolt projects out and engages into the closest aperture (32) in the flange (30) inside the hollow portion (26) so as to lock the retaining element (14) in position.

[0022] The organiser device will thus be secured and can safely be left unattended with any risk of theft very greatly reduced. Such security apparatus may therefore be extremely advantageous for purposes of display of this sort of organiser device at point of sale.

[0023] Referring now to Figs. 6 to 9 of the drawings, a second practical embodiment of the security device of the invention comprises the same frame (10) with base (20), flanges (22), (24) and hollow portion (26) as in the first embodiment, in combination with a differently shaped fixed channel element (82), and a different retaining element (84) compared to the first embodiment. The parts which are the same will not be described again. The same reference numerals are used for the parts as in Figs. 1 to 3, 10, 11 and 14.

[0024] The fixed channel element (82), is larger than the element (12). It consists of a generally rectangular web of sheet steel, which is fixed to the front of the frame (10) by bolts (34), which are accessible only to the front of the apparatus when it is not locked in use securing a device which would cover said bolts. When thus fixed, the element (82) extends above the hollow portion (26) of the frame. The element (82) has an upstanding rim (86) along its top edge and along its side edge adjacent the channel it provides.

[0025] The retaining element (84), which is shown separately in Fig. 9, comprises a hollow portion (88) of exactly the same profile as the position (36) in the first embodiment, also mounting a locking device (17). However an end wall (90) is bent to a shape of a lazy S (92) to provide two widths of channel (92) at the front in addition to a flange (94) to the rear of the hollow portion (88). The hollow portion (88), of course, is a sliding fit in the hollow portion (26) of the frame (10), as in the first embodiment.

[0026] This second embodiment is used in the same way as the first, but the fixed channel element (82) and the end wall (90) of the retaining element (84) are adapted to co-operate and fit around the edges of a lidless electronic organiser device, such as that marketed under the name PALM (registered trade mark), or of a mobile telephone.

[0027] Referring now to Figures 15 and 16 of the drawings, a third practical embodiment of the security device of the invention comprises a frame (100), a channel element (112), a slidably adjustable retaining element (114) and a support plate (116), all made of sheet steel, for example, just as the previous embodiments.

[0028] The frame (100) is somewhat different to that in the previous embodiments in that it comprises a flat base (120) having only a single upstanding flange (122) at one side, and a slotted hollow section (126) extending from that flange (122), above the base. However, the hollow section (126) is additionally supported above the base (120) by way of a hollow post (124), the interior of which is in communication with the interior of the hollow section (126).

[0029] Inside the hollow section (126) there is still an upstanding flange (130) provided with a row of apertures (132). At the rear of the hollow section (126) there is a transverse slot (128).

[0030] The retaining element (114) is similar to element (14) in Figures 1 to 5, only shorter, because this

embodiment is specifically intended to secure a mobile telephone, which is narrower than the organiser device for which the first embodiment is designed.

[0031] Both the hollow section (126) and the retaining element (114) are of very similar quadrangular profile to the corresponding parts in Figures 1 to 5.

[0032] The support plate (116) is substantially the same as in the previous embodiments and has a substantial pin (144) welded to the centre of its top surface, as well as holes (148) spaced therefrom for receiving the head of fixing bolts (not shown).

[0033] A fixing plate (160) is identical to that in Figures 3 and 8 above.

[0034] A locking device (117) identical to that in the preceding embodiments is mounted onto the rear wall of the retaining element (114).

[0035] A unique feature of this embodiment is that the locking device (117) alone serves to secure the frame (100) to the support plate (116). Thus a second locking device on the base (120) of the frame (100) is not required. The position and dimensions of the hollow post (124) are such that in use it is seated directly over the pin (144) on the support plate, as clearly shown in Figures 15 and 16. As the retaining element (114) is slid into an engagement position, a lip (115) thereof engages into a groove (146) in the pin (144), thereby preventing removal of the frame (100) from the pin (144) in a direction axially of the pin (144). However, as in the previous embodiments, the frame (100) is still able to rotate on the pin, relative to the support plate (116). Once the locking device (117) is secured through one of the apertures (132), of course, the retaining element (114) cannot be slid back, so the entire frame is secured to the plate (116).

[0036] The channel element (112) is similar to that in the second embodiment (Figures 6 and 7) as it is of enlarged rectangular form, and has a rim (186) along one side and along the top. However, it differs in one respect in that, as well as being detachable, it is adjustably mounted on the front wall of the hollow section (126) by means of a pair of elongate guide slots (138). To co-operate with each guide slot (138) there is a respective guide post (136) projecting from the front of the hollow section (126) and a respective bolt (134) engaging into an aperture in the wall of the hollow section and a threaded bush mounted therebehind. The retaining element (114) is in fact recessed at (119) to allow clearance for those bushes.

[0037] Adjustment of the channel element (112) enables a particularly snug fit to be obtained when a narrow item such as a mobile phone is to be retained between the channels of the element (112) and (114).

[0038] The foregoing are illustrative and not limitative of the scope of the invention. Many variations are possible. In particular, in other embodiments the hollow portion of the retaining element may fit as a sleeve over and outside the hollow portion of the frame, instead of inside as in the illustrated embodiments. Also, the locking de-

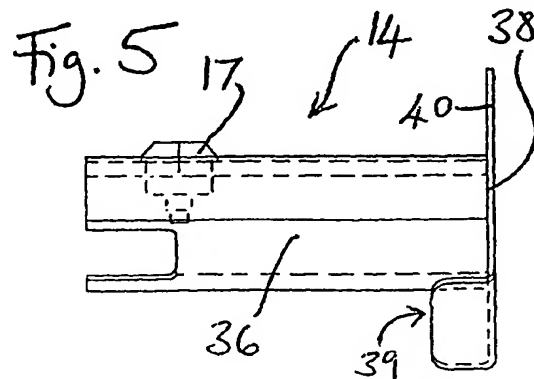
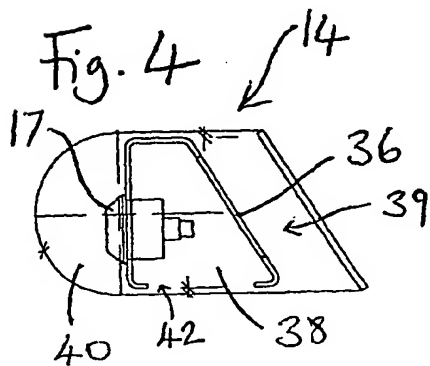
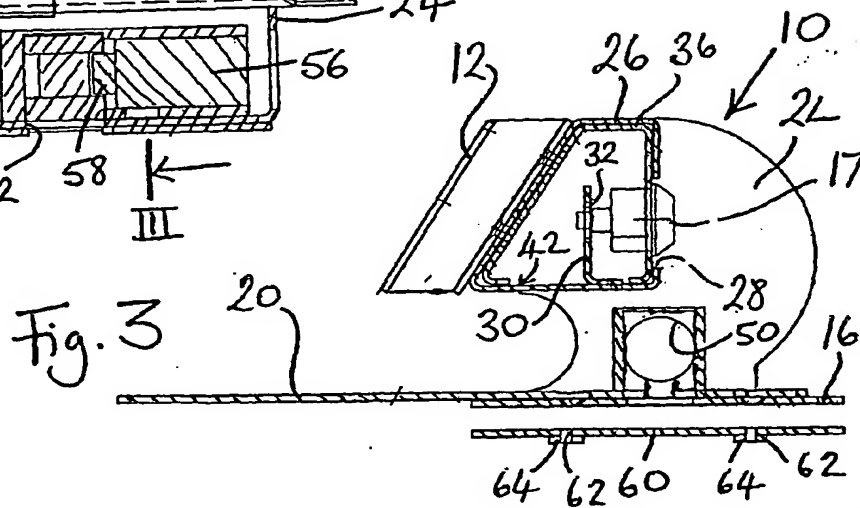
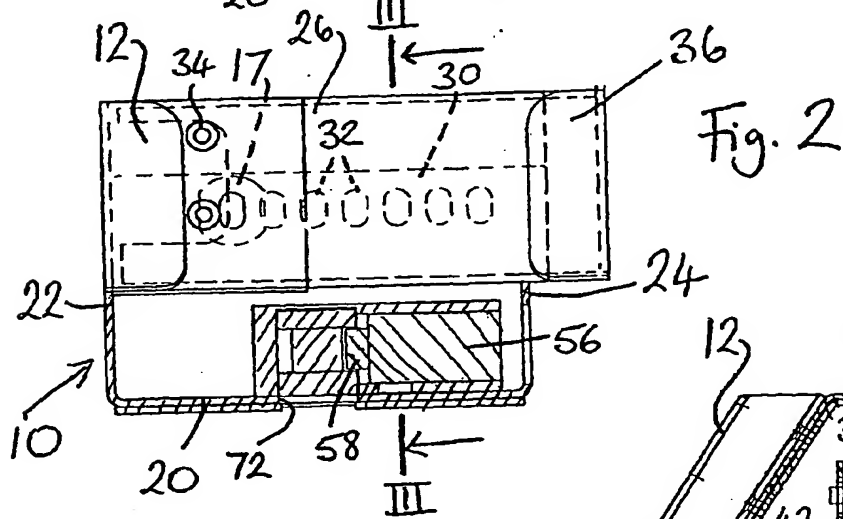
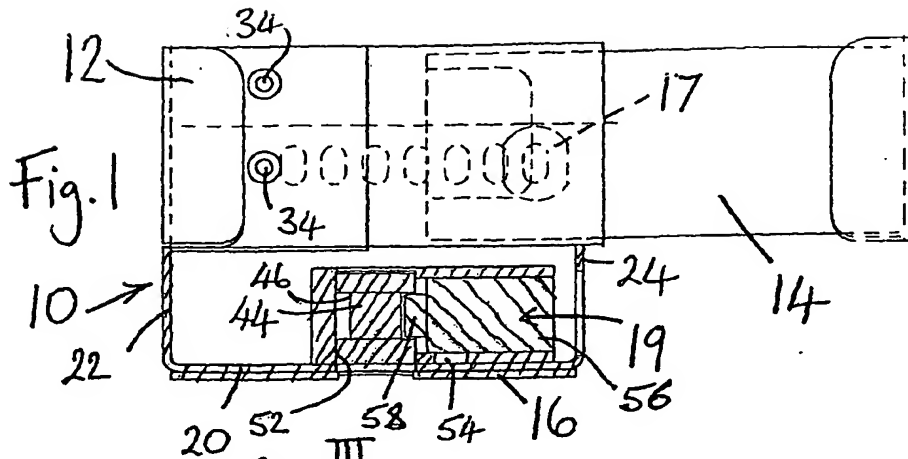
vice may be mounted on the hollow portion of the frame instead of on the slidable retaining element. Also the "fixed" channel element of whatever configuration may be formed integral with the frame or permanently secured thereto rather than being detachable, as in the illustrated embodiments.

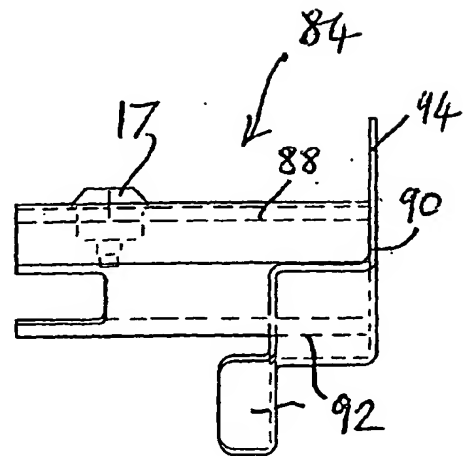
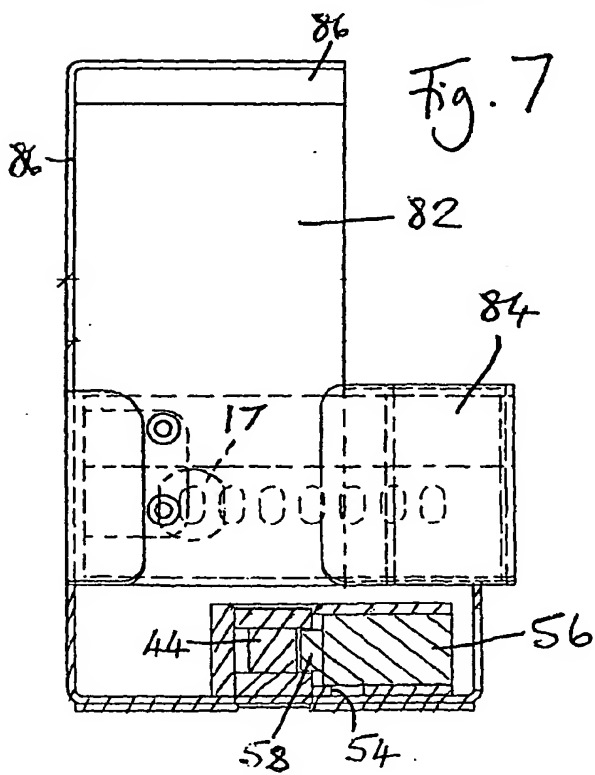
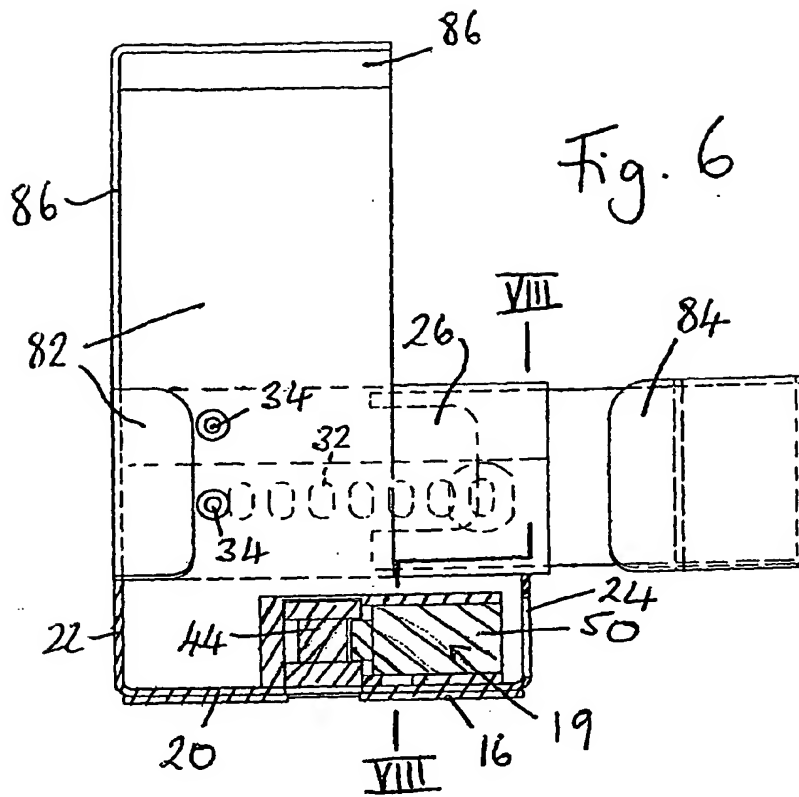
Claims

1. Security apparatus comprising a frame having a channel adapted for retaining one edge of a device to be secured, a retaining element for engaging an opposing edge of the device, and means for securing the frame to a fixed structure, characterised in that the retaining element provides a further channel for reception of the opposing edge of the device and is mounted on the frame so as to be slidably adjustable relative thereto and securable thereto in a selected position.
2. Security apparatus according to claim 1 wherein a portion of the frame is hollow and the retaining element is slidably locatable therein.
3. Security apparatus according to claim 2 wherein a locking device is mounted on the retaining element and the hollow portion of the frame is provided with a slot for reception of the locking device as the retaining element is slidably adjusted.
4. Security apparatus according to claim 3 wherein a series of apertures are provided in a flange, within the hollow portion of the frame, and the locking device is securable thereto by way of a selected one of the apertures.
5. Security apparatus according to claim 2 wherein a locking device is mounted on the hollow portion of the frame and a series of apertures are provided in the retaining element, the locking device being securable to the retaining element by way of a selected one of the apertures.
6. Security apparatus according to claim 3, 4 or 5 wherein the locking device serves to secure the frame to the fixed structure as well as securing the retaining element in a selection position relative to the hollow portion of the frame.
7. Securing apparatus according to claim 6 wherein the frame includes a base and the hollow portion of the frame is mounted on the base by way of a hollow post.
8. Security apparatus according to claim 7 wherein the means for securing the frame to a fixed structure includes a support plate having an upstanding

grooved pin which is locatable through the hollow post and is secured against axial movement by a lip of the slidable retaining element.

9. Security apparatus according to any of claims 1 to 5 wherein the frame includes a base and a locking device mounted thereon for securing the frame to the fixed structure.
10. Security apparatus according to claim 9 wherein the means for securing the frame to the fixed structure further includes a support plate having an upstanding grooved pin to which the further locking device on the base of the frame is securable, in a manner permitting rotation of the frame relative to the pin, said plate itself being securable to the fixed structure.
11. Security apparatus according to any preceding claim wherein the channel of the frame is provided on a detachable element.
12. Security apparatus according to claim 11 wherein the detachable element is itself adjustably mountable upon the frame.
13. Security apparatus according to claim 11 or 12 wherein the detachable element includes an extension in the form of a web having an upstanding rim along at least one edge.
14. Security apparatus according to any of claims 1 to 12 wherein the frame has an extension, adjacent the channel, in the form of a web having an upstanding rim along at least one edge.





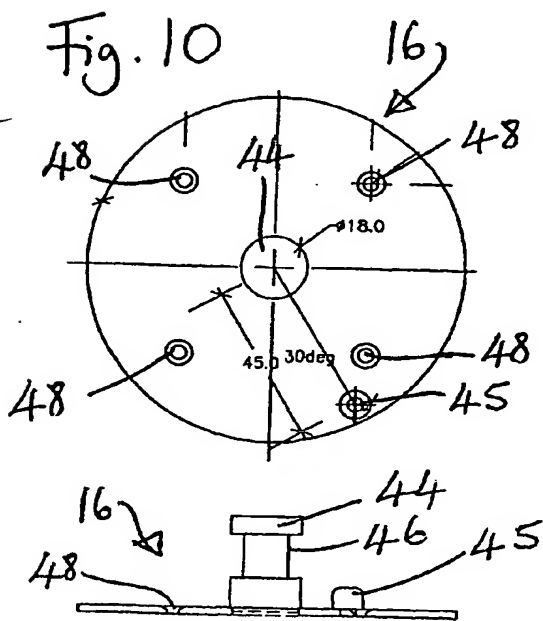
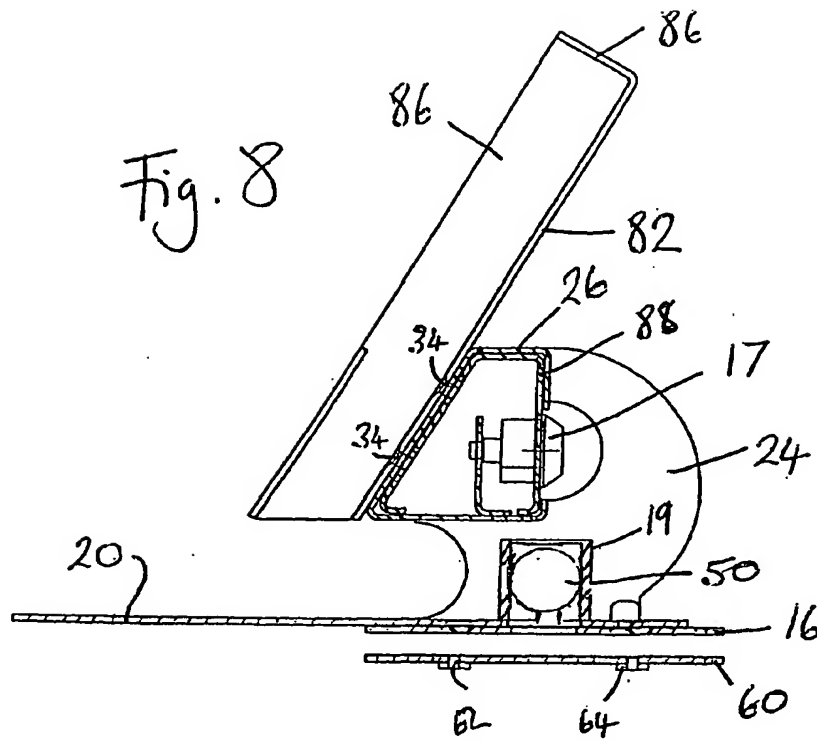


Fig. 11

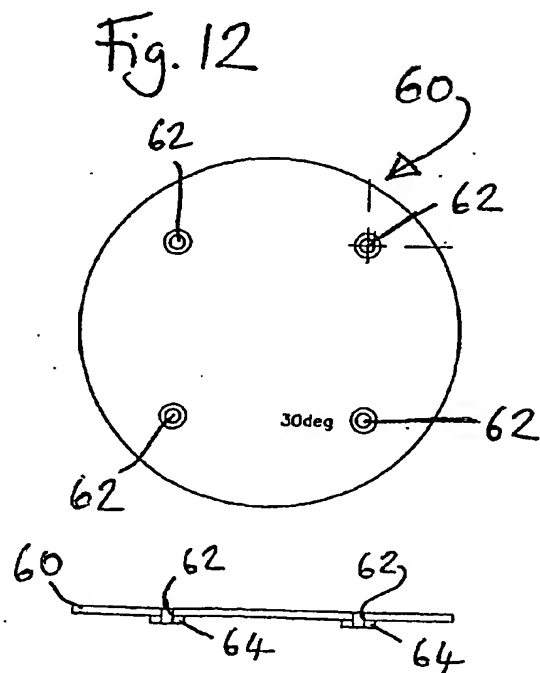


Fig. 13

